Remarks

1) Applicant thanks the Examiner for his well considered office action and hopes that this response will further the understanding of applicant's invention.

2) Claims 1-51 are pending in the application. Claims 1-12, 14-24, 26, 29-32, and 35-41 stand rejected under 35 U.S.C. 102(a) as being anticipated under Bulst (US 4,679,014). All other claims are being objected to as being dependent from a rejected claim but are otherwise allowed if rewritten in independent form.

3) Applicant amended without prejudice, independent claim 1 to clarify language that used inherent properties of the subject matter as well as implied knowledge. In light of the Office position, applicant realizes that such clarification is desired for the claims to better serve their public notice function. Paragraphs 0020, 0043 and 0048 have also been corrected to reflect this clarification, which is supported throughout the remainder of the specifications. Finally a typographical error in paragraph 0054 is corrected.

4) As the skilled in the art will recognize, there is a clear distinction between the electromechanically active, active area, and electromechanically significant terms. An electromechanically active or electrically active means that the elements of the structure are locally arranged and connected in such a way as to provide at least two connection points forming the electrical port of a transducer. Those terms explicitly excludes nonconductive features such as etched grooves, dielectric ridges and the like and further excludes conductive elements connected to each other at a common node (so-called short-circuited gratings) or not connected in any manner (so-called open-circuit gratings). The term "electromechanically active" therefore refers to such structures as one skilled in the art might refer to as "the transducer" or the "interdigitated transducer". By contrast, "electromechanically significant" was explicitly defined to mean that the structure was so designed as to cause the reflection of acoustic waves through either electrical or mechanical perturbations (see paragraph 0005). However an "active area" is the total area covered by the reflective grating, which may include both electromechanically active, and electromechanically significant structure. This distinction was clearly made in paragraph 0018 and elsewhere throughout the specifications.

5) It should be noted that an electromechanically active structure may be electromechanically significant as well, however a purely electromechanically significant structure need not be active, i.e. no electrical energy is being inputted or outputted from such structure.

6) The Bulst et al. reference discloses an improved method for the projection photolithography of both transversal and resonator filters. In setting forth their invention Bulst relates their invention to the making of resonator filters (column 1, lines 26-30). Resonator filters are well known and their operation is further explained in paragraphs [0014] – [0017] of the present application, including an outline of their deficiencies with respect to the present invention.

7) Bulst discloses that the prior art employed a free or unoccupied region between said transducers but further suggests that the region may contain 20-50 strips or may be omitted (column 4, lines 25-48). As pointed out in the present application, such transversal filters require minimization of reflections and electromechanically insignificant coating strips. It should be further noted that Bulst discusses individual electrodes while the present invention discusses periodic groups of strips, thus 20-50 strips corresponds to at most 10-25 periods. The present invention discloses an optional structure interposed between the transducers of ideally 25 to 150 periodic groups (50 – 300 strips) and specifies that they be reflective, whereas Bulst has specified that the strips so added are done so in accordance with the Bulst invention for leveling optical exposure (e.g. using one of the three methods of rendering electromechanically insignificant or reflectionless).

8) Bulst then discloses a reflector 70 (column 5, lines 9-11), abutted directly to transducer 53. The skilled in the art will recognize this structure as a conventional two-pole resonator filter having one acoustic cavity located between the two transducers 53 and 54 and the second acoustic cavity located between one transducer 54 and its adjacent reflector 60.

9) Bulst does not specifically teach any desired relationship between the ranges provided for transducers and reflectors, and thus the skilled artisan will have to apply the common knowledge in the art to create a structure according to Bulst, absent the teachings of the present invention. The conventional structure of a two pole resonator is well known in the literature and has well known design limitations that DIRECTLY CORRELATES the number of strips in the transducers and the number of strips in the reflectors to the intended bandwidth and the substrate properties. The ideal reflector for the Bulst resonator filter dictates the incident energy must be completely reflected, which dictates minimizing transducer length and maximizing reflector length. It is clear therefore that in order for the Bulst filter to achieve its intended purpose, the art, including the Bulst disclosure dictates that a correlation between the ranges specified for the transducer high electrode count and the reflector high electrode count, and correspondingly low transducer electrode count will dictate a low reflector electrode count. Since the range of transducer elements numbers is lower than the range of electrode element numbers and the numbers are known to be proportionally correlated, it is more than inclusive of the design constraints to express this mathematically as $Nt<Nr$.

10) One skilled in the art will therefore recognize that the ranges given by Bulst (column 7 lines 4-10) for the numbers of strips in the transducer (10 to 400) and the reflector (200 to 1000) have a high degree of correlation and that it is not consistent with the operation of a filter to select, for example, 400 strips in the transducers and 200 strips in the reflectors. Therefore, while the worst case examples of 800 transducer strips (the maximum disclosed strip count for two transducers) out of a total of 1,220 (the maximum transducer strip count, plus the minimal disclosed strip count for two reflectors, plus the minimum center spacer strip count) yields 65% of the active area consisting of transducers, doing so will destroy the operation of the Bulst filter. Therefore, the practical issue that requires at least $Nt<Nr$, yields an upper practical limit on Bulst wherein the

transducers cover less than 50% of the electromechanically significant area.

11) Furthermore, the Bulst reference relates to a filter that utilizes two transducers (electromechanically active) where (col. 2, ll. 1-6) a group composed of strip shaped coatings (i.e. the reflector, see col. 4, ll. 12-36 and the drawing) operates in a REFLECTION FREE MANNER, adjacent the end of the interdigital structure, (i.e. the transducer) (emphasis added). Clearly, as Bulst specifically discloses, a structure that is not reflection free would inhibit the operational characteristics of the filter. The claimed invention requires an electromechanically significant grating, with at least 60% of its length covered by an active transducer. Clearly the rest of the grating is also electromechanically significant, and therefore is NOT reflection free, as defined in paragraph 5 of the present specifications. Thus Bulst teaches directly away from the present invention as claimed.

12) In summary, Bulst fails to disclose the claimed limitations of having electromechanically active transducers covering at least 60% of an electromechanically significant reflective grating. Furthermore, Bulst fails to describe the claimed electromechanically significant reflective grating. Therefore, applicant respectfully submits that the Bulst reference does not anticipate claim 1 and all its dependent claims. Applicant therefore respectfully requests that the rejection be reconsidered and withdrawn.

Applicant has made a good faith effort to address each and every point made by the Examiner, and amended the claim in order to place the application in condition for allowance. Should the Examiner find any deficiency in this amendment or in the application, or should the Examiner believe for any reason, that a conversation with applicant's agent may further the allowance and issuance of this application, the Examiner is kindly requested to contact Shalom Wertsberger at telephone (207) 799-9733.

In light of the showing and all other reasons stated above, applicant believes that the rejections and objections presented by the Examiner in the office action mailed to applicant Dec. 3, 2004 were overcome. Applicant therefore submits that the claims as amended are in

condition for allowance. Reconsideration and withdrawal of the rejection and issue of a notice of allowance on all pending claims is respectfully solicited.

Respectfully submitted

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